

LICENSING CHECKLIST FOR SMALL LABORATORIES
RIA ONLY OR TOTAL ACTIVITY < 10 mCi
NO IODINATIONS

This checklist is to assist those applicants requesting licensure (or renewal) for small laboratories. Include the following information and/or descriptions noted below on form RH-2050 or attachments thereto. General information can be found in the guide, form RH-2051. Please submit all information in duplicate.

- Item 1. a. Name of Applicant: Specify the name of the company or business entity responsible for the radiation safety program.

 b. Mailing Address: California only, if possible.

 c. Phone Number: California only, if possible.
- Item 2. a. Type of Business: If government, indicate here.

 b. Location of Use: List all locations of use and include room numbers, if applicable.

 c. Application Type: Self explanatory.
- Item 3 a. Nuclide: Specify isotopes to be used; (e.g. H-3, P-32, etc.)

 b. Form: Specify chemical form to be used; (e.g. RIA kits, labeled compounds, or any form). Note that I-125 or I-131 will be limited to labeled compounds only. Contact the department for further information required for performing radioiodinations.

 c. Possession Limit: State the maximum inventory to be in possession at any one time (including expected radwaste).
- Item 4. Proposed Use: Summarize the proposed uses and include typical amounts used per experiment.
- Item 5. Radiation Safety Officer and Users: Provide completed RH-2050A forms for the RSO and supervisory users only.

Item 6. Radiation Detection Instruments:

Complete the table indicated under Item 6. Suggested instrumentation for nuclides typically used in small laboratories:

- a. For P-32, S-35, and C-14, a ratemeter with a GM probe (or built in) with a window thickness not exceeding 2 mg/cm^2 should be used for direct surveys.
- b. For I-125, direct surveys should be made with a thin sodium iodide detector for adequate efficiency.
- c. For H-3 and C-14 only, area smear survey samples can be counted in a liquid scintillation counter. Direct meter surveys are not needed for these isotopes.
- d. Area smear surveys for beta emitters can all be counted by LSC techniques, and gamma or X-ray emitters can be counted most efficiently by a gamma well counter.

Item 7. Method, Frequency, and Standards Used in Calibrating Instruments Listed Above:

- a. Provide the name of the authorized service company who will be calibrating survey meters. You may commit to utilizing any other authorized service company in the future to avoid amendments involving such a change.
- b. The frequency should be annually (as a minimum) and following repair.
- c. Specify sources used for calibration of the liquid scintillation or gamma well counter. Indicate if these are received as exempt or should be included under Item 3 of the application.

Item 8. Personnel Monitoring and Bioassay Procedures: Only individuals handling 1 millicurie or more of high energy ($> 200\text{keV}$) beta or gamma emitters would need to be considered for extremity dosimeters (TLD or film). If a dosimetry program will be utilized, specify type, vendor, and frequency of exchange. Also, you may commit to any other NVLAP approved organization to change the vendor without notifying us. Bioassays are not indicated for small laboratory uses.

Item 9. Facilities and Equipment:

- a. Provide a facility diagram showing storage and use areas.
- b. Specify any shielding to be used, if applicable.
- c. Describe any other safety related equipment used in isotope handling.

Item 10. Radiation Safety Program:

- a. Provide the “General Safety Rules” which will be followed by all users of radioactive materials. Commit to providing initial and annual refresher training on these topics to keep the users informed (this is also required by Section 30280 of Title 17).
- b. Submit ordering, receipt, and inventory control procedures. Package receipt surveys should be done as appropriate for the nuclide(s) and quantities likely to be encountered. These surveys should include, as a minimum, checks for external package contamination and if damaged, verification that the final source container remains intact. The standard limit for removable contamination is 2200 dpm/100 cm².
- c. Commit to conspicuous posting of form RH-2364 (Notice to Employees) which is supplied by the Department with the license. Also commit to posting the license, operating procedures, and regulations or if not practical, where these items may be found.
- d. Assure that containers, storage areas, rooms, and equipment in which radioactive materials are used are properly labeled in accordance with Section 30278 of Title 17.
- e. Provide area survey procedures appropriate to the types and amounts of radionuclides proposed in the application. In general, daily surveys of work areas and personnel leaving the facility should be done (not recorded unless a positive result is found), and weekly or monthly recorded surveys will be maintained for inspection. The following table summarizes typical frequencies expected:

QUANTITIES (STOCK CONTAINERS) IN USE	FREQUENCY
< 1 mCi (< 10 mCi H-3, C-14)	monthly
1 mCi to 10 mCi	weekly

These survey frequencies are for direct meter and area smear surveys. Most facilities have been able to use a 200 dpm per 100cm² removable activity limit and a 0.1 mR/hr (or twice bkg.) direct reading limit.

- Item 11. Effluent and Environmental Monitoring: This item is generally not applicable due to the small quantities considered for use. See Item 12 for disposal.
- Item 12. a. If using the sanitary sewer system, provide estimated monthly water usage by the laboratory and calculate expected concentrations for each proposed isotope. Compare these with those in 17 CCR 30287.
- b. For solid waste packaging, consult with a qualified radioactive waste broker for detailed information.
- c. To store for decay (isotopes with physical half lives less than 65 days), specify time to decay, surveys prior to disposal, and label removal or defacement.
- Item 13. Decommissioning and Decontamination Plans: Commit to a thirty-day prior notification of your intent to vacate and that a clearance survey will be furnished to the Department. Typical limits are 200 dpm/100 cm² removable (area smear samples) and twice background direct readings.
- Item 14. Certificate: The application should be signed by an official who can commit policy for the licensee identified in Item 1 of the application.